

The Challenge to Health Statistics in the Eighties

LESTER BRESLOW, MD, MPH

THE CHALLENGE TO HEALTH STATISTICS in the United States during the 1980s will be at least fourfold: (a) to delineate clearly the changing health problems in the nation, (b) to reveal information about health that people want to know and important information they might not know to ask for, (c) to help discern and measure the factors that endanger and that promote health, and (d) to develop and apply the methods and technology that will enable health statistics to meet these major challenges.

Changing Health Problems

As recently as 15 years ago our nation's health problems, and particularly their trends, appeared different from what they are today. For example, into the mid-1960s coronary heart disease had been rising steadily as a cause of death. This disease, first described in the early part of this century, was accounting by 1965 for 35 percent of all deaths. Then the peak was passed, and since 1965 there has been a decline of more than one-fourth in the mortality rate from coronary heart disease. For many years regarded as a so-called degenerative disease, coronary heart disease has now been shown by health statistics to be a modern epi-

demic. Rather than being measured in a few weeks or months like the epidemics of most acute communicable diseases, the epidemic of coronary heart disease has extended over several decades but since the mid-sixties has been turning downward. Also, during the most recent 15 years, health statistics has tracked the rise and decline of another modern epidemic, cancer of the body of the uterus, as well as the extension of the lung cancer epidemic to women.

Again focusing on recent years, health statistics during the period 1955-65 demonstrated America's failure to keep pace with other advanced nations in respect to infant mortality. Whereas the death rate for infants in Scandinavian and other northern European countries was dropping well below 20 per 1,000 live births, the rate in the United States was 26 in 1955 and 25 in 1965. During the past 15 years, however, our infant death rate has been cut in half, and it is still going down steadily—a fact not yet sufficiently appreciated.

These examples indicate the relatively rapid shifts that have taken place in the trend of important health problems, shifts that through health statistics can easily be observed well within a decennial period.

What changes will the 1980s bring? Will we be able to catch up with the Scandinavian countries and others whose death rates have kept on declining below ours? Will infant death rates and death rates among males under 65 years of age from coronary heart disease continue to be substantially higher among blacks than whites? Will we recover from recent reversals in health,

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such as the increase in mortality among young people in the late 1970s? What new epidemics will arise?

To delineate clearly the nation's changing health problems, of course, requires more than the keeping of mortality statistics and the publication of annual reports presenting them. It is necessary to go beyond deaths—infant deaths and deaths from cancer and heart disease—as the measure of health. Avoiding the premature end of life and its specific causes no longer expresses the goal of health for Americans. The words “adding life to years, not merely years to life” take on meaning when one considers that life expectancy at birth has increased from 47 years in 1900 to 74 years at present; it increased about 2½ years just during the 1970s. Does this addition constitute years of healthful life or merely years of existence? How healthy are those extra years, and how healthy can they be? These questions will no doubt increasingly be raised in the eighties.

Leaders in health statistics recognize and are responding to this changing emphasis. Our measures of health, as distinguished from those of life and death, are still fairly crude, but at least there is substantial agreement on the direction we must go. Those who struggled to initiate morbidity surveys in the 1930s and 1950s can see the progress. We must move faster, however, to complete the mission of devising and using more acceptable measures of health that reflect the realities, concerns, and goals about health in our time. That matter will be important for health statistics in the 1980s. I will resume that theme later in this paper.

Another aspect of delineating the health problems of our time is to present clearly, in a fashion that will attract appropriate attention and achieve comprehension, the data about health. Publication of the annual volumes of “Health United States” is a major step in that direction. Similar activities are underway in several States. Thus far, however, we have by no means conveyed the understanding of America's health problems that is possible even with existing data. We have not adequately brought that understanding to the general public, nor to the important special groups that particularly need to comprehend our health problems—legislators; health officials; health professionals of all kinds; leaders of business, labor, and the ethnic minorities; and other social leaders. Public health leaders in the past, who were often health statisticians, used the data of their times effectively to capture attention and arouse action on the major health problems of the day. We must do the same. One challenge in the eighties then is to delineate fully and carefully what the health problems are, not just for the experts but for all who should know.

What People Want to Know About Health

Closely related is a second challenge, namely, to find out what people want to know about health and also what they might not know to ask for. Developing and reporting health statistics is essentially a service, a service to many groups in our society. Hispanics want to know about their health, just as blacks are beginning to know about theirs. Both groups want to know how they compare with the majority white population of the country and what progress is occurring in their group. What neither group yet knows to ask—and neither do the majority whites—is how they compare with those enjoying the best health record of any ethnic group in the United States—the Japanese (1).

Let us turn to some more statistically sophisticated groups, those who plan and administer hospital and medical services and the government officials who deal with these planners and administrators. These people want to know in some standardized and sensible format the nature, extent, and cost of the services that are provided by the hospitals, physicians, dentists, pharmacists, and other elements of the health care delivery system with which they are concerned. Health statisticians are beginning to supply such data, stimulated by national slogans such as cost containment and sometimes by stronger pressures closer to home. But again, providing what these users of health statistics want does not fulfill the responsibility of the health statisticians. These statisticians also have the duty of directing attention to the need for population-based statistics that afford a more rational basis for planning and administering hospital and medical care services than the institution-based statistics that are commonly used. Data on the average length of stay and the percentage occupancy of hospitals indicate what is happening in individual hospitals, but they do not delineate what is happening to the people who presumably are to be served by the hospitals. Such institution-based statistics do not adequately reveal even the cost implications. Wennberg and colleagues are showing, in some elegant studies of New England experience (2), that nearly identical percentage occupancy and average length of hospital stay can exist despite large differences in the parameters that are much more significant for hospital planning, for example, a difference of more than 50 percent both in patient days of care per 1,000 persons and in allocated per capita expenditures. Computing such statistics on a proper area-population basis yields the data that we really want to have for planning, giving a picture that is concealed when we stick to institution-based statistics. Furthermore, focusing as much attention as we do on

the average price per day of care and per medical service in different institutions as the targets for cost containment is a serious mistake. In fact, it is the frequency of the service per population unit—not the price per service—that often accounts for the extreme variation in medical service expenditures among different population groups.

Thus, although health statisticians must continue to respond to people's particular desires for information, that is not sufficient. Their mission, especially for the 1980s, includes acquiring, through statistical expertise and the production and analysis of data, the knowledge that bears most significantly on the problems at hand. Even though the existence of that knowledge and how to use it are not yet understood by non-statisticians, a challenge to health statistics is to create and convey that understanding.

Factors Endangering and Promoting Health

From the standpoint of throwing light on current health problems and what to do about them, I believe our health statistics plans and reports throughout the 1970s were grossly out of focus. To correct this major imbalance in our statistics efforts, in the United States and in the industrialized world generally, is probably the most important challenge to the health statistics field for the 1980s.

In recent years, documents with such titles as "Health Statistics Plan," "Planning for Health," and "Priority Health Problems" have reflected much of the significant new health statistics work. A glance through such documents is revealing. Typically they focus on just two aspects of health. One is health status in the traditional sense: measures of infant mortality, the communicable diseases, and the chronic diseases such as cardiovascular diseases, cancer, and mental illness. Attention is often given to the distribution of these health problems among various segments of the population—people of different ages, sex, race or ethnicity, income, and residence. The second aspect, and the one that has been receiving the lion's share of attention, is medical and hospital care. Coverage of this aspect usually includes health care resources, that is, numbers of hospital beds, physicians, dentists, and the like; use of health care services, for example, hospital admissions and physician visits; and financial aspects of health care services, such as the price of a day in the hospital and the distribution of expenditures among the private and public sectors of the economy. To indicate access, measures of health care resources and use of health care services by various geographic, racial, and income groups have commonly been included in health statistics.

This concentration of effort on health care services is understandable. In the mid-1960s our nation made a policy decision to achieve equity in the use of health care services as a major approach to health, particularly to enhance the access to health care services of previously disadvantaged groups. The twin aims of that policy were to improve the health of the nation and to advance social equity. Health statistics, albeit with many serious imperfections, has served to monitor what happened after that decision. Several significant things have happened. The increasing proportion of the gross national product devoted to health care services has accelerated: the percentage was 4.0 in 1940, 4.5 in 1950, 5.3 in 1960, 6.2 in 1965, 7.6 in 1970, 8.5 in 1975, and probably more than 10 in 1980. Black people have received more physician visits than before and old people, more nursing home care. Also, overall, health status as commonly measured has improved.

In recording all of this information and displaying some of the health problems, however, health statistics has accepted health care services as its principal focus. It has perpetuated the basic assumption that these services constitute essentially the only factor in health about which modern society can do anything. That assumption is false, and the fallacy is becoming ever more obvious. Take one specific, well-known example. Cancer is a much feared health problem and the second leading cause of death. Lung cancer is becoming its major component, causing at present one-fourth of all deaths from cancer. Health care services, both existing and foreseeable, can provide little help for this component of the problem. Cigarette smoking is the overwhelming factor, and it has been known as such for many years. At this point some may protest: But health statistics found that out! True. The point is, however, that health statisticians have not provided in their central plans and reports for the systematic collection and presentation of data about cigarette smoking. Such work has been a peripheral matter.

The same relative neglect during the 1970s characterized the treatment in health statistics of other behavioral factors in health, such as excessive caloric intake in relation to bodily energy needs, excessive intake of sugar and salt, and excessive use of alcohol. It is becoming generally understood that the cigarettes, calories, alcohol, sugar, and salt that people consume have more impact on their health than the various types of health care services. Some U.S. government leaders, voluntary health agencies, and professional bodies, influenced by a few epidemiologists and health statisticians, have begun to highlight various behavioral factors in health. Health statistics reports,

however, generally do not yet reflect these problems, nor even the trends toward recognizing them.

Environmental factors affecting health were also relegated during the 1970s to a minor position in health statistics. Yet the importance of exposure to ionizing radiation, noise, new chemicals, and other features of the environment, in the workplace and elsewhere, is increasingly appreciated. It is heartening, therefore, to see at the beginning of the 1980s the issuance by the National Center for Health Statistics of "Environmental Health, A Plan for Collecting and Coordinating Statistical and Epidemiologic Data" (3). Efforts intended to protect and enhance health through environmental control measures are rapidly spreading through the country, at all levels of government and the private sector. These current efforts to improve the environment for the sake of health are essentially a renewal of the moves undertaken early in the last century when another set of environmental factors in health became apparent, the carriers of infectious agents. Today's environmental health measures are appropriately directed against the present hazards: chemical and physical agents as well as infectious agents.

Concern about health care services largely dominated health statistics during the 1970s. That concern, though not its domination, is still justified. Health statistics should do more than tag along after the prevailing mode of health care services and the prevailing anxieties about them and their costs. Although there is reason for profound anxiety about these services and their costs, moves to relieve the underlying problems will not be aided by statistics that reflect merely the accounting procedures required in dealing with fee-for-service payments to individual hospitals and other providers. Obviously, so long as that mode prevails, detailed account must be kept of all transactions involving payment. Information systems that will really guide the development of health care services toward improving health, however, will have to include more than an orderly arrangement for reporting and analysis of the services, providers, and dollars involved.

Such health care information systems should include data with geographic and demographic detail sufficient for guiding health care services throughout the country, for example, data about (a) the populations eligible for services; (b) the health status of those populations; (c) the extent of the selected services with an indication of the quality of care actually received by those populations, such as the proportion with certain conditions who have been seen by a physician at least once in the past year, the proportions of various age groups adequately immunized against measles, poliomy-

elitis, and other diseases, and the proportion of women at various ages who have had a Papanicolaou smear and have had a breast examination by a physician and when each was last done; and (d) the extent of services received that might not be needed, for example, the proportions of various segments of the populations that receive certain types of injections, surgery, and other procedures.

Most of these kinds of data, of course, are being collected at the national level through well-designed and well-conducted sample surveys, in which the Federal Government has developed considerable competence. To a much greater extent they likewise could, and should, be obtained for smaller geographic areas; also, systematic presentation of such data should focus on the populations served or to be served. One can now find a considerable amount of statistical data concerning the ratio of physicians and hospital beds to population in the various States, but comparatively little about the extent of immunization, breast examinations, and surgery in the States.

The most far-reaching challenge to health statistics in the 1980s is to present a balanced picture of people's health status and of the factors that endanger and promote good health. To meet that challenge will require more appropriate measures of health status than the ones heretofore used. It will also require balanced collection and presentation of data concerning the three principal ways that modern society can protect and improve health status, namely, through influences on behavior, through environmental control measures, and through health care services. All three are important and should receive careful attention in health statistics.

Shifting the focus of health statistics to the population of an area from the institutions or other providers of health care would make it possible to obtain a coherent and comprehensive view of the population's health status along with information about the three main sets of factors influencing it, namely, health care, environmental conditions, and personal behavior. Socially desirable moves to improve health would then appear in perspective, to guide us toward a more rational health policy.

Health information systems with this aim would include population-based data of the kind previously mentioned in connection with health care services; data for the same population concerning environmental hazards in the water, air, food, workplace, and home; and data about health-related behavior, such as cigarette smoking, obesity, and alcohol use in the same population. Relating health status to these sets of factors would provide a basis for setting priorities among various efforts, for example, to assure the safe use of automo-

biles, to build more nursing homes beds in an area, or to curtail obesity. Even within the problem of the attack on one disease—coronary heart disease, for example—data of the sort envisaged here would help decide how much emphasis should go to coronary care units, emergency medical services, finding and treating high blood pressure, curtailment of cigarette smoking and obesity, and reducing the animal fat content of food.

For health statisticians, the quest of the 1980s, in respect to the factors that endanger health and those factors that promote it, will be to develop and exploit information systems which will support a more rational data-based health policy that makes systematic use of behavioral influences, environmental control measures, and health care services to improve health.

Methods and Technology

Technological advances during recent years, such as in computers, and improved methods, such as in sampling, have greatly expanded the potential of health statistics. For example, the feasibility of linking computerized records of the health-related data from a substantial sample of the 1980 census with the national registry of deaths, which was initiated in 1979, opens tremendous possibilities. That record linkage will permit study of the factors associated with mortality on a magnitude never before possible in the United States.

It is reasonable to anticipate that the methodology and technology for health statistics will continue to improve through the 1980s, and health statisticians will no doubt be participating in these developments. Health statisticians face a continuing demand to devise methods and techniques to solve problems and advance their field.

International Aspects

After peace among nations and human freedom, one of the most fundamental searches of our time is for ways to achieve health. Of special interest here are the definition and measurement of health. The World Health Organization advanced the notion that health is "physical, mental and social well-being, not merely the absence of disease and infirmity." Yet in the three decades since that WHO pronouncement, relatively few serious attempts have been made to make the concept operational, to reduce it to quantifiable terms. Some say that is impossible. I disagree and suggest that it is time to start.

The increasing popularity of such terms as "wellness" and "holistic" reflects the striving for a concept of health beyond the one that has guided us heretofore. Measurement of health should soon begin to reflect something positive, something to be maintained and

promoted, as well as something whose loss we fear. We must learn how to measure the entire health spectrum, not merely its negative end—deterioration.

An interesting point is that both the countries of the West and the countries of Eastern Europe have proposed a set of social indicators, as distinguished from indicators of national economic status and progress. Moreover, the sets of social indicators that the two groups have devised are very similar, and in both, health appears prominently.

Although the leading and competing industrialized nations of the world have joined and participate with others in the World Health Organization, what is not so well known is that within the framework of their continuing intense rivalries, both the Western and the East European nations have recognized the necessity of measuring social as well as economic and military status and trends. Of great significance, it seems to me, is that they propose to develop and use similar social indicators, among which health is an important component. The United Nations itself has also issued a report of a similar venture (6). Measurement of social status, including health, for the purpose of discerning national trends and international comparisons appears to be a potentially significant step for society. This little known and unheralded development opens the possibility of international competition of a new sort—competition in social, and especially health, status.

The 1980s could be the time when social advance will become a significant, even the most significant, focus of competition among nations. Such a view of the current international scene may seem overly optimistic. However, whether or not it is justified, the two major groups of industrialized nations have agreed on the World Health Organization definition of health. They have also agreed in effect (in separate documents of a similar nature) that we should explore the development and use of social indicators, among which health is an important component.

That agreement does seem to provide a basis on which health statisticians throughout the world, in the developing as well as the industrialized nations, should now construct and apply more appropriate measures of health than those of the past. Such measures would contribute, for the rest of this century and into the next, to international as well as national progress in health.

Summary and Conclusion

The 1980s may well be the most challenging decade ever for health statistics. In the past decade we have observed the extension of longevity; it has increased more than 50 percent since 1900. In the coming decade

we must find ways to delineate the new and rapidly changing health problems of advanced industrial society so clearly that all may understand them.

Also, we face the task of making health statistics a responsive service that reveals what people should know about health as well as what they want to know. This task calls for the health statistician to become an educator and leader, to go beyond simply serving as the source of desired information.

Moreover in the 1980s we must develop a well-rounded system of health statistics covering all the major factors that promote or endanger health. In particular this means expanding data concerning environmental and behavioral influences on health and bringing knowledge of these factors at least up to the level of current data about health care services. For maximum usefulness, we also will have to focus on all three sets of factors as they exist among populations in geographically defined areas. Only in this way can the potential for improving health be understood and guidance be provided to action for improvement. We need to develop further the methods and techniques that will elucidate the major issues in the field, taking into account global as well as micro-problems and opportunities.

Finally, it should be noted that our country has made a tremendous and increasing budgetary commitment to health. It troubles me greatly (and many others as well) to realize that the investment is probably not being well made. Yet the very means of guiding that investment and directing it into channels for the greatest return are being squeezed down to dangerously low levels in the budgetary process.

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1. c. Heart disease is the most frequent cause of disability or activity limitation. Arthritis and rheumatism is the second.
2. a. Upper respiratory conditions (including colds) is the most frequently reported acute condition in household interviews, with some 130 million conditions in 1979. Other respiratory conditions, such as influenza, also ranked high. Only about 4 million headaches were reported.
3. c. Life expectancy at birth is highest for white women at 77.8 years, followed by all other women, 73.6; white men, 70.2; and all other men, 65.0, according to the 1978 data.
4. b. Infant mortality rates are lowest in the Western Region of the United States, with a 1978 rate of 12.1 deaths under 1 year per 1,000 live births. Rates for the other regions were Northeast, 13.1; North Central, 13.6; and Southern, 15.3.
5. a. August is a close second to June in the number of marriages performed each year. January is the least popular month.
6. b. The oral contraceptive is the nonsurgical family planning method most used by married couples; 22 percent use this method, compared to 7 percent for the condom, 6 percent for the IUD, and 3 percent for foam.
7. d. Since 1950, heart disease has been the leading cause of death, accounting for 38 percent of all deaths in 1978. Cancer accounted for 21 percent.
8. a. Most women ages 15-44 whose marriage ends in divorce remarry within 5 years; 20 percent within the first year after divorce.
9. d. Private health insurance, consisting of Blue Cross and other private or commercial insurance, was the principal expected source of payment for 54 percent of all discharges from non-Federal short-stay hospitals in 1977. Medicare was second with 25 percent, and Medicaid accounted for another 8 percent, according to data from the National Hospital Discharge Survey.
10. a. About 50 percent of the population selected

excellent when comparing their health to that of other people their age. Another 30 percent thought their own health was good, according to a recent National Health Interview Survey.

11. b. Home accidents are about 5 times as frequent as motor vehicle accidents; however, motor vehicle accidents account for more than half of all accident deaths.

12. b. Most American mothers do not nurse their babies, but the number who do is growing, up 30 percent during the first half of the 1970s, reports the National Survey of Family Growth.

13. c. Office visits to general and family practice physicians accounted for 36 percent of all visits recorded in the 1978 National Ambulatory Medical Care Survey. However, obstetricians and gynecologists and other surgical specialists accounted for almost 31 percent of visits.

14. b. Excluding biopsies and diagnostic dilation and curettage of the uterus, hysterectomy was the most frequently performed operation recorded in the 1978 National Hospital Discharge Survey. Next in order were ligation and division of fallopian tubes, tonsillectomy with or without adenoidectomy, repair of inguinal hernia, and cesarean section.

15. d. Almost half of the nation's general medical and speciality hospitals are operated by nonprofit organizations such as churches, fraternal associations, and other institutions.

16. b. Most Americans are not overweight, according to skinfold measurements taken during the National Health and Nutrition Examination Survey. Some 14 percent of men and 24 percent of women were measured as 20 percent or more above desirable weight.

17. b. Data for 1979 show 1,223,000 registered nurses. Nursing aides, orderlies, and attendants was the next largest category, another 1 million. There were about 430,000 physicians and 130,000 dentists.

18. c. Walking was the most common form of exercise among persons 20 years of age and over. Some

34 percent favored walking, compared to calisthenics, second with 14 percent, swimming (12 percent), bicycling (11 percent) and jogging (almost 5 percent).

19. a. The median age of brides at first marriage was recorded as 21.4 years for 1978. In 1970 the average bride was about a year younger.

20. a. The sex ratio in 1978 was 1,053 male births per 1,000 female births, unchanged from 1977. This ratio varies very little from year to year.

21. b. Accidents are the leading cause of death for all age groups under 25.

22. b. The mean weight for women ages 18-74 is 143 pounds. Average weight ranged from 132 pounds for women 18-24 to 149 in the 45-54 and 55-64 age groups.

23. c. The mean weight of men aged 18-74 is 172 pounds. Average weight was lowest (165 pounds) for young men 18-24 and highest (178 pounds) for men 35-44 years old.

24. a. Approximately 64 percent of the population needs dental treatment of one type or another based on data collected in the National Health and Nutrition Examination Survey. Dental care needs include cleaning, periodontal treatment, filling, and extraction.

25. b. Labor costs amount to about 60 percent of the expenses of providing care to residents in nursing homes. Operating expenses accounted for about 22 percent, fixed costs for another 14 percent. Miscellaneous costs accounted for the remainder.

26. a. For 40 percent of residents in nursing homes, diseases of the circulatory system was the primary diagnosis at the last physical examination. This compares to 20 percent for mental disorders and senility.

27. c. In the 1978 National Ambulatory Medical Care Survey of office-based private physicians, sore throat was the most frequent reason for a physician visit, followed by cough, back symptoms, skin rash, and colds. Sore throat was the cause of more than 17 million visits to physicians.